DOCUMENT RESUME

ED 107 904 CE 004 017

AUTHOR Edgecomb, Philip L., Comp.
TITLE Summaries of Studies in Agricultural Education: North Atlantic Region: 1971-72.
INSTITUTION Rutgers, The State Univ., New Brunswick, N.J. Dept. of Vocational-Technical Education.
PUB DATE Nov 72
NOTE 46p.; For related document, see CE 004 016

EDRS PRICE MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS *Abstracts; *Agricultural Education; Educational Research; *Research; Research Projects; *Vocational Agriculture

ABSTRACT

There has been a decrease in research and development activities focused on agricultural education probably due to expanded research in other areas. The document consists of 24 abstracts of completed studies and a list of 23 studies that were in progress during the preparation of this document. The studies are arranged alphabetically by author. The abstracts include title, purpose, method, and findings. (JB)

**********
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
**********

MAR 2 0 1975

# SUMMARIES OF STUDIES

# IN

# AGRICULTURAL EDUCATION

# NORTH ATLANTIC REGION

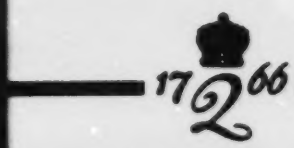
## 1971 - 1972

STATUS REPORT

STUDIES IN PROGRESS

ABSTRACTS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.




THE DEPARTMENT OF
VOCATIONAL-TECHNICAL EDUCATION
GRADUATE SCHOOL OF EDUCATION
RUTGERS UNIVERSITY
THE STATE UNIVERSITY OF NEW JERSEY

ED107904

# Summaries of Studies in Agricultural Education

## North Atlantic Region

## 1971-72

Compiled and Edited by

Philip L. Edgecomb
Regional Representative
North Atlantic Region
Agricultural Education Division
American Vocational Association

Issued by

The Department of
Vocational-Technical Education
Graduate School of Education
Rutgers University
The State University of New Jersey

November, 72

## INTRODUCTION

This compilation of research activity during 1971-72 in the North Atlantic Region includes 24 abstracts of completed studies and a list of 23 studies that are in progress at the present time. The 24 studies completed compares with 45 studies completed in 1970-71 and 43 studies completed in 1969-70. The studies are arranged alphabetically by author.

Abstracts of research completed in 1971-72 were reported by teacher education institutions and state departments of education in the region. All studies reported are available for loan from university libraries, teacher education departments, and state departments of vocational and technical education.

This compilation of research activity in agricultural education is an activity of the Research Committee of the Agricultural Education Division of the American Vocational Association.

Philip L. Edgecomb
Regional Representative
North Atlantic Region
Agricultural Education Division
American Vocational Association

TABLE OF CONTENTS

Research Abstracts, 1971-72 . . . . . 1

Studies in Progress, 1972-73 . . . . . 38

RESEARCH ABSTRACTS

1971-1972

. 'CKES, DANIEL H. A Comparison of Intrinsic and Extrins. Styles of Programmed Instruction for Students of Vocational Agriculture with Different Reading Abilities. Thesis, M.Ed., 1972, Rutgers University. 71 p. Library, Rutgers University, New Brunswick, New Jersey.

Purpose--To determine if the style in which a programmed instructional lesson was written would affect the rate of learning for a group of students in vocational agriculture with different reading abilities. Specifically, the following hypotheses were tested.

1. The program written in the extrinsic style will provide a significantly greater gain in learning than the program written in the intrinsic style regardless of the reading level of the students.
2. Both styles of programmed material will provide for significantly greater gain in learning as students' reading levels increase.

Method--Two programmed lessons were prepared on plant nutrition, one using the extrinsic style of response (i.e., completion), and one using the intrinsic style (i.e., multiple-choice). A 20-question test was also prepared to serve as a pretest and as a posttest. The Nelson-Denny Reading Test was used as the measure of the students' reading abilities.

The programs were administered to six freshman vocational agriculture classes; and data were obtained for 64 students. To test the first hypothesis, the analysis of variance procedure for a 2 x 2 factorial design was used, with the program style and reading ability as the independent variables, and the gain in learning scores as the dependent variable.

The second hypothesis was tested by using the Pearson Product-Moment Correlation, between the reading scores and the gain in learning scores for all the students, regardless of the program they received.

Findings--In testing the first hypothesis with the analysis of variance procedure, no significant differences between the two variables were found. That is, there was no significant difference between the program styles, and there was no significant difference between the reading levels of the students. Also, the interaction

between the program styles and reading levels was found not to be significant. In this analysis, approximately 97% of the variance was left unexplained by the two independent variables.

When the second hypothesis was tested with the product-moment correlation, an r value of .38 was obtained. Although this was significant at the .05 level, it represents only 14% of the variance.

It was concluded from this study that the program response style does not affect the rate of learning for vocational agriculture students with a wide range of reading abilities. Therefore, it is further concluded that if no differences exist between the two program styles as measured by the rate of learning, the extrinsic program should be used, as it is more easily prepared.

ANTHONY, FRANK and HARRY J. HOERNER. A Survey of On-Farm Service Center Equipment and Farm Maintenance and Construction Activities on 190 Pennsylvania Dairy Farms. Staff Study, 1971, The Pennsylvania State University. 17 p. Department of Agricultural Education, Teacher Education Research Series, Volume 12, Number 3, The Pennsylvania State University, University Park.

Purpose--To survey percentages of farms having selected hand and power tools in a service center. To determine numbers of farm power units, implements, and other equipment. To find which maintenance and repair tasks are performed by farmers and to ask their needs for instruction.

Method--A survey instrument was mailed to teachers of agriculture who were working with young adult farmers. The teachers were asked to give the data schedules to dairy farmers with herds of twenty cows or more. One hundred ninety farmers from 29 counties responded. They answered questions in the following areas: (1) inventory of hand tools in on-farm service centers, (2) inventory of power tools and accessories, (3) the shop facility and its uses, (4) inventory, maintenance and repair of selected equipment, (5) instruction needed in adjustment, maintenance, repair, and operation of selected equipment, and (6) accidents on their farms. Tables of frequencies and percentages were made. Correlations were interpreted.

Findings--The farmers indicated that the hand tools intended to be purchased are tap and die sets, pipe cutters, anvils, and torque wrenches. The farmers lacked power tools such as gas and electric welders and expressed need for instruction.

The 180 farmers reporting shop facilities said the service centers were used 10.3 hours in December to 16.2 hours in May. The average shop was 16' x 24' in size. A number of farmers constructed wagon racks, truck racks, platforms, self feeders, and wagon beds in their on-farm service centers.

In 1969 the 190 farms had 679 tractors, 354 plows, 225 trucks and 240 mowers. Tractor maintenance jobs performed by the farmer or his employee in rank order are: (1) change oil and oil filter, (2) service air filter, (3) replace spark plugs, (4) change fuel filters and

clean sediment bowls, (5) service cooling system, (6) replace points and condenser. Maintenance jobs reported for the plow included, changing shares and making hitch adjustments. Adjusting seed and fertilizer rate was reported for the corn planter and the grain drill. The jobs for the mower were repair knife sections and replace guards. Sharpen and replace plunger knife was most reported for the baler. The most common job for the corn picker was adjusting gathering chains.

When the farmers were asked to indicate a need for instruction in adjustment, maintenance, repair, and operation of equipment, they listed most frequently the adjustment, maintenance and repair of tractors, plows, balers, and combines. Only a few asked for instruction in operation.

Sixty-six accidents--23 of them were falls--occurred in one year on the 190 dairy farms. The most serious reported for the year was a tractor upsetting, fatal to the operator. Cutting fingers on forage harvester knives was the second most frequent cause of accidents. Stepping on nails, and being kicked or stepped on by cows were other causes of accidents.

BERKEY, ARTHUR L. and WILLIAM E. DRAKE. An Analysis of Tasks Performed in the Ornamental Horticulture Industry. Staff Study, 1972, 127 pages. College of Agriculture and Life Sciences, Cornell University, Ithaca, New York.

Purpose--To identify the tasks, conditions under which the tasks were performed, and the level of task performance for the ornamental horticulture industry.

Method--The ornamental horticulture industry in New York was divided into nine business areas. Preliminary lists of functions and tasks performed to fulfill were developed. A sample of industry employers by business area then verified the list of functions and tasks and provided the conditions under which tasks were performed and the task performance levels.

Findings--Over 900 tasks to include task conditions and performance levels were identified as being performed to fulfill functions in the nine business areas. The task data should be valuable for behavioral objectives for curriculum as well as manpower management.

BERKEY, ARTHUR L. and WILLIAM E. DRAKE. Using Task Data for Recruitment of Workers in Ornamental Ho ticulture, Report of a Field Test. Staff Study, 1972, 105 pages. College of Agriculture and Life Sciences, Cornell University, Ithaca, New York.

Purpose--The purpose of the study was a realistic assessment of the potential of task checklists for recruitment of workers in ornamental horticulture in terms of employer acceptance and efficiency.

Method--The task checklists were field tested for recruitment in three New York State Counties in cooperation with the Rural Manpower Office, Division of Employment, New York State Department of Labor. Task checklists appropriate to their business areas were mailed to all horticulture employers in the three test counties. Employers were invited to use the checklists to recruit workers through Rural Manpower Offices. Evaluation sheets were obtained from employers both using, and not using, the checklists for recruitment.

Findings--Limited employer acceptance of the lists, and insufficient number of applicants to the Employment Service for horticulture employment to fill job openings, indicate that the greatest potential for checklist use will be with individual employers rather than industry-wide. Other potential uses for the task data are orientation of counselors, objectives for training programs, and employee management.

BERKEY, ARTHUR L., WILLIAM E. DRAKE, and JAMES W. LEGACY. A Model for Task Analysis in Agribusiness. Project Study, 1972, 159 pages. College of Agriculture and Life Sciences, Cornell University, Ithaca, New York.

Purpose--To develop a procedural model for task analysis of the ornamental horticulture industry that may be adapted to other areas of agribusiness.

Method--The model was designed using the functions-task analysis approach. Industry and education experts assisted in identification of nine business areas and compilation of a preliminary list of functions and tasks performed to fulfill functions within the business areas. Personal interviews were used to administer the analysis instrument whereby respondents verified functions and tasks performed to fulfill the functions. Respondents also provided information on the conditions under which tasks were performed and the acceptable level of performance. The respondents were a sample of New York horticulture employers by business area selected on the basis of geographical concentration, large size, and those using modern practices. Task data was tabulated using the model employer response.

Findings--The functions-task model is one viable approach to task analysis of ornamental horticulture in New York State. Future research may show that this model may be adapted for task analysis in other areas of agribusiness.

BOGGS, ROSCOE. An Evaluation of the State Vo-Ag Judging Contests by Teachers of Vocational Agriculture in West Virginia. Thesis, M.S., 1972, West Virginia University. 40 p. Library, West Virginia University, Morgantown.

Purpose--To determine the benefits accruing from the State Vocational Agriculture Judging Contests.

Method--Data for this study were obtained by means of a questionnaire directed to ninety-five vocational agriculture teachers in West Virginia. There were seventy-one who completed and returned the questionnaire.

Findings--An analysis of the data revealed: (1) teachers selected the State Vo-Ag Judging Contests over most other state-wide events; (2) judging skills and educational travel were rated as two of the most beneficial values; and, (3) holding the contests in the spring headed the list of suggested improvements.

On the basis of the analysis, the writer concluded that the contests are an integral part of vocational agriculture and should be promoted and evaluated to meet the needs of agricultural education in today's world.

BUZZELL, ROBERT E. An Analysis of Preparation of Graduates of Morrisville Agricultural and Technical College Who Transferred to Cornell University During the Years 1964-1968. An Essay, Thesis, M.Ed., 1972, Cornell University. Agricultural Education, Cornell University, Ithaca, New York.

Purpose--The main purpose of the study concerning Morrisville Agricultural and Technical College (MATC) graduates who transferred to Cornell for a baccalaureate program was to determine the following information: (1) the adequacy of the MATC two-year program in preparing students who transfer to the Cornell program; (2) the level of success attained by MATC graduates in their baccalaureate pursuits at Cornell; (3) in what academic subjects MATC graduates were underprepared at the time of their entry into the Cornell program; and (4) the factors most influential to the decisions of MATC graduates to transfer to a baccalaureate program.

Method--All of the fifty MATC graduates who transferred to Cornell during the years 1964-1968 were included in the study. The transfers enrolled in three divisions of the New York State School of Agriculture: Food Processing, Agriculture, and Mechanical Technology.

A questionnaire was developed modeled after studies like Cooper, Jahns, and Cadozier's; Smith's; and Sears Roebuck Foundation's. After the questionnaire was reviewed by fellow graduate students, it was revised. In its final form, four of the eight items concerned the field of guidance and four investigated various aspects of the MATC curriculum. The questionnaire was mailed with a cover letter to the fifty transfers who graduated from Cornell during 1964-1968 asking for their cooperation.

Data for the remaining sections of the study were obtained from the participants' transcripts on file at both MATC and Cornell. Items were tabulated and charts prepared in accordance with the type of material to be presented in the study.

Findings--The author of the study found that 74% of the MATC graduates who transferred to Cornell earned the baccalaureate degree compiling between 120 and 123 credit hours on the average. The MATC graduates carried a 2.45 grade point average while at Cornell in comparison with 2.87 for the college as a whole.

The results of the questionnaires indicated that the graduate transfers did not originally have plans to transfer to a baccalaureate program when they first enrolled at MATC, and they decided to do so primarily because of their top performance at MATC. It was found that the MATC faculty advisors were the most influential to transfer decisions and 87% would begin college again at the two-year college level. Eighty-five percent felt that they were adequately prepared through the MATC program to successfully function in the Cornell program although the greatest advantage of the MATC program was that it allowed for adjustment to college life. The greatest disadvantage seen in the transfer was in the loss of credit hours. Sixty percent of the MATC graduate transfers indicated that they would have benefitted from additional electives or new courses at MATC. They also indicated how they would schedule their programs differently if given a second chance at MATC.

BYRD, TAYLOR, Jr. Effects of a Task Analysis Model with Behavioral Objectives on Cognitive and Psychomotor Learning of Educationally Disadvantaged Students. Thesis, Ph.D., 1972, The Pennsylvania State University. 151 p. Library, The Pennsylvania State University, University Park.

Purpose--To provide instructional materials in ornamental nursery production adapted to the needs of educationally disadvantaged students with emphasis on a task analysis model with behavioral objectives and evaluation by tests of cognitive achievement and of skill performance.

Method--A multivariate field teaching experiment was designed to test student learning in three instructional unit treatments, two plant materials treatments, and among three student educational classifications. Six teachers (schools) were assigned to each instructional treatment. Three in each group of six were supplied rooted chrysanthemums and three obtained their own plant materials for the teaching experiment. In each of the 18 classes, the students were classified into three groups--disadvantaged, average, and above average--on the basis of a three-part rating scale.

Cognitive learning was measured by a multiple choice achievement test. Psychomotor learning was appraised by a skill performance score based on ratings of task and element student behaviors. Teacher attitude toward teaching educationally disadvantaged students was measured by semantic differential technique. Analysis of covariance and related significance tests were used.

Findings--The experimental task analysis model mean cognitive achievement posttest score (CAPS) of 15.3 and the manual treatment mean of 14.8 were significantly greater than the outline treatment mean score of 11.4 by analysis of variance. When adjusted for influence of grade point average and pre-test score, all three groups differed at the .001 level. The task analysis model was most effective.

The adjusted mean psychomotor skill score (PSYS) for the task analysis treatment was 7.9 which was significantly higher than the 6.8 mean PSYS for the manual treatment. The manual treatment mean PSYS was significantly higher than the 6.2 for the outline only group. The covariates were grade point average and agriculture class rank.

The student CAPS mean for the group supplied plant material was significantly higher than the group not supplied plant material. The conclusion is that when materials are supplied to teachers, the students score higher on an achievement test than students whose teachers must find materials locally. But, the student mean PSYS was significantly higher for the group not supplied plant materials which was reversed effect from that of the CAPS. Causal influence is not known. The student adjusted mean CAPS showed no significant differences between student classification groups. The disadvantaged student group adjusted mean CAPS was 16.2, the average group 15.5, and the above average group mean was 16.1. It was concluded that knowledge learning by the disadvantaged students compared favorably to the average and above average students. Student mean skill performance did not show a significant difference between the student classification groups nor were the adjusted mean PSYS differences significant.

Teacher attitude scores on 11 of 12 selected concepts related to teaching the disadvantaged were not correlated with school mean achievement of students. There was a significant negative correlation of teacher attitude on verbal ability of the disadvantaged ($r = -.62$) and school mean student PSYS. Teachers did not feel that a high verbal ability was important to disadvantaged students when being taught psychomotor skills.

COLEBANK, C. ALLEN. A Determination of the Effectiveness of Instructional Aids in Teaching Vocational Agriculture Classes. Thesis, Ed.D., West Virginia University, 60 p. Library, West Virginia University, Morgantown.

Purpose--To determine if student achievement could be improved by emphasizing the use of instructional aids in teaching vocational agriculture classes.

Method--Data for this study were collected in cooperation with eight vocational agriculture teachers who completed a credit workshop on the use of instructional aids conducted by the Agricultural Education staff. Each teacher taught a unit of their choosing with special emphasis on the use of instructional aids. Other units were taught with no special emphasis on using instructional aids. These units were taught during the first semester of 1971-72. The teachers submitted the unit test scores from the current year along with unit test scores from the first semester of 1970-71. These data were summarized and analyzed by the analysis of variance method.

Findings--The analysis of the mean units test score differences found no significant difference between the experimental group and the control groups. The variation that occurred could have happened by change.

The second analysis involving the individual test score difference did reveal a significant difference indicating an advantage when instructional aids are used in teaching. This analysis procedure is more precise than the mean unit test score difference and was able to detect a variation not discovered in the first analysis. This second analysis also detected a significant interaction between the teachers. This suggests that each teacher is performing as an individual and his students are reacting independently in his classes.

The conclusion is made based on the more exact second analysis that instructional aids are effective in improving student learning. It is also concluded that more needs to be done for the teacher to provide training, equipment, and materials to ensure continued successful use of instructional aids.

DRAWBAUGH, CHARLES C., RICHARD H. MERRITT, and PHILIP L. EDGECOMB. New Jersey Manpower Needs in Natural Resources and/ or Agriculture. Staff Study, 1972, Rutgers University. 200 p. College of Agriculture and Environmental Science and Department of Vocational-Technical Education, Graduate School of Education, Rutgers University, New Brunswick, New Jersey.

Purpose--To determine present and projected employment opportunities for jobs in natural resources and/ or agriculture in respect to: (1) full-time and seasonal or part-time employment; (2) educational levels desired by employers for specific jobs; (3) salary characteristics; and (4) descriptive labor market information.

Method--The total population of businesses in natural resources and/ or agriculture was stratified by: (1) the 23 business categories; (2) the northern, central, and southern geographical regions of New Jersey; and (3) previous business size as defined by 0 employees, 1-23 employees, and 26 or more employees. Several exceptions to business size were necessary when this information was not available. Each stratum of business units was sampled with a mail questionnaire. Data were analyzed with the job title as the basic unit.

Findings--Changing employment patterns were projected for the five-year period from 1971 to 1976. A 30.7% increase in full-time positions from 65,757 in 1971 to 85,930 in 1976 was projected. The 17.2% decrease in seasonal or part-time positions was from 55,548 in 1971 to 45,974 in 1976. An analysis of new positions and replacements indicated a need for 19,627 additional full-time workers and a surplus of 4,434 seasonal or part-time workers.

DUPPERON, ROLAND J., Jr. An Analysis of Competencies Needed in Selected Areas of Campground Technology for Private Enterprises. Paper, M.Ed., 1972, The Pennsylvania State University. 79 p. Library, The Pennsylvania State University, University Park.

Purpose--The purposes of this study were: (1) to identify, rate, and cluster groups of competencies at the To Enter and To Advance levels for workers in privately owned campgrounds; (2) to determine the educational and residential background preferred for workers in campgrounds; and (3) to determine the type of in-service education being provided for employees in campgrounds. Increased and better facilities demanded by the rapidly growing camping public have created a need for more campgrounds and more highly skilled campground managers and employees.

Method--A survey schedule was developed to determine the level of competency needed in campground technology for entrance and advancement. Business and agricultural skills included in the survey were characteristic of those needed in private campgrounds. Interviews were conducted personally by the investigator. Twenty-seven campgrounds in McKean, Potter, and Tioga Counties, randomly selected, provided the information needed for this study.

Findings--All of the competency cluster areas surveyed were meaningful in the operation of a campground. In rank order of mean competency rating to advance as a campground manager or employee, the areas were: safety, business and economics, state and local laws, sanitation, roads, waterfront, plumbing, electricity, construction mechanics, trees and shrubs, sewage control, lawn areas and soils, and animal life.

Occupational advancement in campground businesses requires additional training in agricultural and business competencies. Owners indicated that in-service training programs were needed to aid themselves and their employees in acquiring the competencies needed for advancement and proper operation of their campground businesses.

Knowledge of the competency cluster areas rated high by the interviewees would be important in the development of teaching materials and occupational training programs in the high school or post high school.

FROWINE, STEVE A. An Educators' Guide to Programs, Services, and Facilities of Arboreta and Botanical Gardens of Northeastern United States and Canada. Thesis, Master of Science, 1972, Agricultural Education, Cornell University, Ithaca, New York.

Purpose--To gather general and specific information concerning the educational programs, services, and facilities from each arboretum and botanical garden in Northeastern United States and nearby Canada. The information was to be categorized as to its usefulness in teaching various horticultural fields. The information was to be summarized in a form that will serve as a teacher's guide in specific subject matter areas of ornamental horticulture.

Method--The author of this study designed a questionnaire from which he gathered all of the data for this study. The questionnaire requested information about the following aspects of the arboreta and botanical gardens: educational programs, educational materials and services, and educational facilities. The questionnaires were mailed accompanied by a letter of introduction, instructions for completing the questionnaires, and a stamped, self-addressed envelope. If no response was obtained within six weeks of the first mailing, a second questionnaire and a follow-up letter was issued. The collected information was then evaluated, summarized, and the findings presented in tables and charts.

Findings--More than eighty percent of the institutions solicited completed and returned the questionnaire. This allowed the author to draw some general conclusions to give the educator in the field some insights into the extent of the educational programs, materials, services, and facilities of the arboreta and botanical gardens in Northeastern United States and nearby Canada.

It was found that seventy-five percent of the institutions offered educational programs at some time during the year. A large variety of educational materials and services are available at the gardens and arboreta. Most common were the variety of publications available and the guided field trips conducted by over seventy percent of the institutions. Over sixty percent had most of their plant materials labeled. A large number of the gardens

and arboreta have test plots of trees, shrubs, and roses. Over two-thirds of the institutions have research and library facilities although they are usually only available to the staff of the garden or arboreta.

It was also discovered that educators should become more aware of the existing educational programs, services, and materials available at the institutions. The author found that the report should be up-dated every two years in order to maintain its usefulness as a guide. It was also found that there is a need for each arboreta and botanical garden to assign a staff member as liaison between the institution and the schools in the nearby community. This would increase the use of the institutions and help avoid duplication of arboreta and botanical garden services, programs, and facilities by the local school districts.

GAPASIN, CELEDONIO M. The Preservice and Inservice Educational Needs of Vocational Agriculture Teachers in the Philippines. Thesis, Ph.D., 1972, The Pennsylvania State University. 200 p. Library, The Pennsylvania State University, University Park.

Purpose--To determine differences in (1) evaluation of the undergraduate vocational agriculture teacher education program by teachers, school administrators, and college supervisors; (2) opinion of teachers, administrators, and supervisors as to the importance of extra class activities in college in the preparation of agriculture teachers; (3) relationship of training to subsequent participation of the teacher in supervised farming, FFP, guidance, and adult education phases of the school program; (4) consensus of teachers and administrators as to problems beginning teachers encounter; and (5) perception of teachers and administrators concerning agricultural and professional needs of teachers for inservice education.

Method--A survey schedule was developed and copies mailed to 90 agricultural schools in the Philippines. Completed schedules were received from 229 vocational teachers, 56 administrators in secondary schools, and 10 college supervisors (teacher educators).

The data were analyzed under eight categories. Totals, averages, percentages, product moment and rank order correlations, and chi square calculations were carried out at the University Computation Center.

Findings--Many of the vocational agriculture teachers of the Philippines did not have student teaching experience in college. However, they took professional courses prior to or after employment as teachers. The subject areas where teachers were found especially weak in their training were: young and adult farmer education, agricultural mechanics, and student farming programs. The three groups of respondents in this study believed that extra-class activities are important in the general training of prospective agriculture teachers. Involvement in college extracurricular activities will add to the teacher's qualifications.

The teachers' evaluation of various phases of their student teaching experience ranged from "poor" to "excellent." The present participation of the agriculture

teachers in five areas of the high school vocational agriculture program is better when compared to their college training in those areas. There was a significant correlation between their college training and participation in those activities. There was a significant difference in the degree of consensus between agriculture teachers and school administrators in four major problems of beginning agriculture teachers.

The agriculture teachers in the eight school regions attended 14 types of inservice education activities in local, regional, and national levels during the two-year duration required for this particular part of the study. There was no great variation among the regions in the number of teachers attending any of the inservice activities. Lack of personal and school funds is the biggest obstacle to participation in inservice education. Five other factors were identified. There was a significant difference in the perception of teachers and school administrators as to the agricultural and professional needs of teachers for inservice education.

KENNIS, GREGORY L. The Effectiveness of In-Service Instruction to Teachers of Agriculture in Small Gasoline Engines. Paper, M.Ed., 1972, The Pennsylvania State University. 53 p. Library, The Pennsylvania State University, University Park.

Purpose--To evaluate outcomes of in-service courses dealing with small gasoline engines offered to Pennsylvania teachers of agriculture prior to 1971. This was done by surveying innovative teaching accomplishments and determining correlations with teacher characteristics including: age of the teacher, years in present school, self evaluation of teaching of the unit, hours of class teaching spent on the unit, amount of college education, methods of presenting the subject matter, number of students assigned per engine, and amount of money spent on facilities for small engine instruction.

Method--A random sample of 30 teachers was drawn from 109 who had taken in-service courses in small engine selection, operation, maintenance and repair and were teaching high school classes in agriculture in 1971. Survey forms were completed by the 30 instructors. Data analysis was by rank correlation and the McNemar test for before and after change in proportions.

Findings--No significant rank correlation existed between mean scores for degree of "setup" and age of the teachers who participated in the survey. There was no significant rank correlation between mean score and the length of time participating teachers taught at their present schools.

There was a significant positive rank correlation at the .01 level between mean scores and teachers' self-rating of shop equipment used in teaching the small engines course in each teachers' curriculum. The ranks of the mean scores for the degree of "setup" showed a significant positive correlation at the .05 level with the ranks of the teachers' self-rating of his present overall course in small gasoline engines.

There was no significant correlation between the amount of time spent on small engines instruction and the mean score on degree of "setup."

No significant rank correlation was evident between mean scores for degree of "setup" and the teachers' amount of college education.

A significant rank correlation at the .05 level was found between mean score and teachers' methods of instruction in which the unit method was the most popular. There was no significant rank correlation between mean scores in degree of "setup" and teachers' self-rating in quality of presentation of subject matter in small gasoline engines.

There was a negative rank correlation significant at the .01 level between score and number of students assigned per engine in the classroom instruction.

A significant rank correlation at the .05 level was found between the mean score and the annual school budget allotted for the non-consumable supplies in each vocational agriculture department. The rank correlation between mean scores for the degree of "setup" and the sums of both annual school budget money and total federal money for each school surveyed was significant at the .01 level.

There was a 93 percent increase in the number of teachers tested who began teaching a small gasoline engines unit in their schools after taking the in-service course. Sixty percent of the teachers surveyed purchased a major proportion of the tools needed for small gasoline engine instruction after taking the in-service course.

LEAMER, THOMAS C. Predicting Grade Point Averages of Agriculture Students in a Two Year Technical College. Thesis, D.Ed., 1972, The Pennsylvania State University. 85 p. Library, The Pennsylvania State University, University Park.

Purpose--Because a larger proportion of high school students seek admission to college, an increasing number are the so-called high risk students. It becomes necessary that two year colleges use all information available in helping to decide who should be offered admission and who should not.

The purpose of this study was to determine the relation of admission criteria and first semester grade point average of the students in the Agriculture and Natural Resource Division at The State University of New York Agricultural and Technical College at Cobleskill.

The criterion was the first semester grade point average. The predictors tested were the Regents Scholarship Examination score, high school average, high school rank, high school agriculture courses, sex, residence, and eight descriptive scales.

Method--Data for the study were collected from the student permanent files in the registrar's office at the college. The sample consisted of 294 agriculture students who were graduated from the Agricultural and Technical College at Cobleskill, New York, in 1970 and 1971. In addition to the original sample of 294 students, there were 186 students from the class of 1973 in the cross validation group. This made a total of 480 students in the study.

Step-up and step-down multiple linear regression were used with the Statistical Analysis of Single Equation Models program at The Pennsylvania State University computation center. The final step in this computation results in the development of a prediction equation. The prediction equations obtained from the original student group of 294 were then cross validated on 186 students from the class of 1973.

Findings--The Regents Scholarship Examination score, high school average, and high school rank were the predictors that were most important in the study. Using these three predictors, two prediction equations were

formulated for the students in the Agriculture and Natural Resource Division at Cobleskill. One equation was developed for the male students and one for the female students.

When cross validated, both equations were significant at the .01 level. The correlation coefficient for the male students was .60 and for the female students it was .57.

By making use of the regression equations developed in this study, one can determine the most probable grade point average of first semester agriculture students at The State University of New York Agricultural and Technical College at Cobleskill. Therefore, it was recommended that the regression equations derived be used as admission tools in the Agriculture and Natural Resource Division at Cobleskill.

One thing that needs to be emphasized is that the prediction equations should not be used as the only source of evaluation for incoming or prospective agriculture students. They should be used as an aid in making admission decisions.

MIER, DONALD K. An Analysis of an Experimental Scheduling System in the Vocational Agriculture Department of the Central Columbia High School. Thesis, M.S., 1972, The Pennsylvania State University. 45 p. Library, The Pennsylvania State University, University Park.

Purpose--In 1961 the Central Columbia High School changed from a track scheduling procedure to a flexible semester scheduling system. This study analyzed the effects of that change on enrollment, attendance, student IQ level, occupational experience, and FFA activities of students in the agriculture department.

Method-- All students enrolled in agriculture courses for three years (1969-70 to 1971-72) were included in the study. Data were obtained from department permanent records, high school records, and for 1971-72 from a student questionnaire. Information obtained about occupational experience and FFA activities was rated on scales. One hundred and seventy-three students were included. Analysis of variance and chi square were used to analyze the data.

Findings--Enrollment in agriculture courses increased significantly from 34 to 95 students after the scheduling change. Thirty-three percent of the increase was accounted for by students with agricultural career objectives. Other students listed career objectives in distributive and business education. Days absent per student decreased significantly at the ninth and tenth grades. No change in attendance pattern was noted among 34 students who enrolled both before and after the scheduling change. The difference in days absent was accounted for in part by the lower than average students, below 99 in IQ, who attended school more regularly after semester scheduling. In ninth grade in 1971-72, the average IQ level of students who enrolled in agriculture was significantly higher than the previous two ninth grade classes.

FFA membership remained unchanged from the previous two years. Percentage of students enrolled in agriculture who were FFA members declined sharply. There was a significant increase in members' participation in FFA activities. No change was noted from year to year in the size and scope of occupational experience activities of FFA members.

PRUSSNER, KENNETH A. The Attitude of Students Toward the Cornell Home Study Courses of the Food Industry Management Program. Thesis, M.S., 1972, Cornell University. 88 p. Library, Cornell University, Ithaca, New York.

Purpose--The purpose of this study, the first in-depth investigation of students to be conducted since the Cornell Home Study Program began in 1963, was to collect information which would help to improve the Program.

Method--Three populations of students from the continental United State were identified as Successes, Dropouts, and Non starts. The 50 percent samples drawn numbered 100, 164, and 98 respectively. Respondents were asked to indicate their attitude toward selected aspects of the program by the mail questionnaire technique. Unfortunately, very low responses of 25 percent and 10 percent were received from the groups, Dropouts and Nonstarts, respectively. Therefore, only the responses of the group, Successes, which included 75 percent of the sample chosen, were reported in the text of this study while the raw data of the other two groups, Dropouts and Nonstarts, were recorded in the appendices.

Findings--The most important promotional technique identified by 47 percent of the respondents was the store bulletin board poster. Personal contact by an employer was the choice of 17 percent of the respondents.

Sixty-five percent of the respondents indicated that their main reason for enrolling in the program was self-improvement.

Sixty-seven percent indicated that the main feature they liked about the home study method was that they could proceed at their own pace. Of all the suggestions for improving the home study method given by 75 percent of the respondents, the three most important showed that 30 percent of the respondents would like more instructor's comments on incorrect answers; 26 percent would like assignments to be returned more promptly; and 18 percent would like a requirement for assignments to be submitted on set dates.

The students' attitude toward selected aspects of the Cornell Home Study Program showed that all but two of the 20 statements almost reached or exceeded 4.0 on a 5.0 point scale, or the evaluative category of "agree" on a scale which ranged from, high to low, "strongly agree", "agree", "uncertain", "disagree", to "strongly disagree". The respondents' attitude toward whether the courses helped them to gain an increase in salary or to gain a promotion was at the 3.0 level, or the evaluative category of "uncertain". Even though respondents did not feel that they obtained tangible rewards of promotion and salary, 95 percent indicated that they gained many intangible benefits. Of the 71 persons who responded to this question, 31 percent felt that the courses had broadened their knowledge and understanding of the retail food industry.

The overall attitude of the respondents toward the Cornell Home Study Program, as measured on a 100-point scale, was 81.4, or a level of just above the category of "agree". Twenty-nine percent had scores ranging from 76 to 80, while 27 percent had scores ranging from 81 to 85. This strongly favorable attitude of the respondents toward the program was substantiated by the few respondents, 19 percent, who indicated that they do not plan to take courses in the near future.

Only 16 percent of the respondents identified any deficiencies in the manner in which the program provided help or information to students upon their request.

Ninety-six percent of the respondents made suggestions for making the courses of the Cornell Home Study Program a more beneficial and educational tool. Fifty percent of the 46 suggestions were concerned with a need for either new courses, an emphasis on courses specifically related to in-store problems, or obtaining college credit for the courses.

RICHARDS, FREDDIE L. Effects of Performance Objectives on Electrical Skill Learning of Educationally Disadvantaged Students. Thesis, Ph.D., 1972, The Pennsylvania State University. 112 p. Library, The Pennsylvania State University, University Park.

Purpose--To evaluate cognitive and psychomotor effects of (1) two instructional units used to teach students electrical knowledge and skills, (2) three methods of inservice teacher education on student learning and the possible interaction of the instructional units and the inservice teacher education methods, and (3) the instructional units on educationally disadvantaged and not educationally disadvantaged students. The outcomes were tested by a thirty-question multiple choice achievement test of electrical knowledge and by the grade each student received for performance of electrical skills.

Method--A skill unit, "Electrical Wiring Skill Sheets," was developed by the investigator. It contained two jobs and twenty-seven skills. A theory unit, "Basic Electricity and Practical Wiring Lessons," was developed by a professor and a graduate assistant in Agricultural Education at he Pennsylvania State University.

A pamphlet, "Outline of Methods for Teaching the Educationally Disadvantaged Student," was prepared for use in inservice teacher education. The inservice education methods were: Group 1, no formalized treatment; Group 2, mailed pamphlet; and Group 3, delivered pamphlet and discussed its contents. Students in the 4th and 5th fifths of their high school class were classified as being educationally disadvantaged. Students in the 1st, 2nd, and 3rd fifths were classified as not educationally disadvantaged.

Eighteen teachers and their students were randomly assigned to the experimental treatment groups. The nine teachers who received the skill unit were randomly assigned to each of the inservice education methods with three teachers assigned to each method. The nine teachers who received the theory unit were randomly assigned to the inservice education methods with three teachers assigned to each method.

The two dependent variables used in the investigation were the posttest of electrical knowledge and the grade received for performance of electrical skills. The classification variables used in the covariance analysis of electrical knowledge were the pretest and agricultural class fifth. The classification variables for grade received for performance of electrical skills were the knowledge pretest and high school fifth. Student reading level by grade and the pretest were used as the classification variables for testing the effect of the instructional units on educationally disadvantaged and not educationally disadvantaged student grade received for performance of electrical skills.

Findings--Students who studied the skill unit made higher scores on the achievement test than the students who studied the theory unit. The students who studied the skill unit also had better grades for performance of electrical skills. There was no significant interaction of the two units by the three inservice education methods.

The educationally disadvantaged students who studied the skill unit had higher scores on the achievement test and better performance of electrical skills than the educationally disadvantaged students who studied the theory unit. There were no differences in the scores of the following groups of students: The educationally disadvantaged students who studied the skill unit, the not educationally disadvantaged students who studied the skill unit, and the not educationally disadvantaged students who studied the theory unit. The educationally disadvantaged students who studied the theory unit had lower mean scores on both tests.

SEIBEL, RONALD JOHN. The Development and Validation of a Standardized Achievement Test in Plant and Soil Science. Dissertation, Ph.D., 1972, University of Maryland. Library, University of Maryland, College Park.

Purpose--The objectives of the study were: (1) to develop two equivalent forms of an achievement test in plant and soil science for use with vocational-technical agriculture students in grades, 9, 10, 11, and 12; (2) to establish validity and reliability for the instruments developed; and (3) to establish norms for the population sampled.

Method--Vocational-technical agriculture students from Delaware, Maryland, Virginia, Illinois, Indiana, and Ohio were involved in the study. The validity of the test was established by closely adhering to a table of specifications representing the combined judgment of the author and several specialists.

Four hundred twenty items divided among seven tryout tests were administered to 38 schools randomly selected in the 6 states previously mentioned. The total usable returns numbered 1,965. The number of students taking any one of the seven tests ranged from 273 to 282. The minimum and maximum number of students from each grade level taking any one of the seven tests ranged as follows: (1) ninth graders, 84 to 97; (2) tenth graders, 63 to 76; (3) eleventh graders, 49 to 57; and (4) twelfth graders 40 to 52. Based on an item analysis of the tryout data, two final test forms were assembled and once again administered to schools randomly selected in the 6 states. A total of 1,402 returns, representing 36 schools, provided data for the subsequent analysis.

The final two forms of the plant and soil science achievement test developed consisted of sixty items each and were analyzed on the basis of data from 715 examinees for Form A and 687 examinees for Form B. The norms established for Form A were based upon 220 ninth graders, 202 tenth graders, 184 eleventh graders, and 107 twelfth graders. Similarly, Form B was normed on 211 ninth graders, 201 tenth graders, 179 eleventh graders, and 96 twelfth graders.

Findings--Based on the total group, The following statistical indices were obtained for test Form A and B respectively: (1) mean-28.15 and 28.46; (2) standard deviation-8.52 and 8.73; (3) score range-9 to 52 and 8 to 53; (4) standard error of measurement-3.51 and 3.60; (5) standard error of the mean-.32 and .33; and (6) reliability coefficient (K-R 20)-.83 and .83. A correlation coefficient of .80 was obtained on the scores of 62 Illinois students who took both forms of the test. On this group, a reliability coefficient (K-R 20) of .88 was obtained for both Form A and B, and the standard errors of measurement were 3.38 and 3.47 respectively. Form B of the test appeared slightly biased in favor of the eastern three states, with a significant difference among means occurring at the .05 level by t-test.

Conclusions of the study are: (1) present norms must be considered tentative because of the small number of examinees utilized within each grade; (2) since only students from those schools who agreed to cooperate in the test development were available, the norms may not completely represent all students in the states involved; and (3) the test in its present stage possesses adequate reliability and validity for use as a research tool where the measurement of achievement in plant and soil science is required.

STRAIGHT, ROBERT E. Factors Associated with the Establishment and Maintenance of a Continuing Education Program in and Through Vocational Agriculture for Young and Adult Agriculturists in West Virginia. Thesis, M.S., 1972, West Virginia University. 91 p. Library, West Virginia University, Morgantown.

Purpose--To determine and identify the significance of association of (1) the teacher, (2) the school, and (3) the agricultural community variables by comparing the vocational agriculture teacher who does teach young and adult agriculturist education programs with the vocational agriculture teacher who does not teach such programs. Information was collected about the existing young and adult agriculturist education programs.

Method--Data for this study were collected through questionnaires submitted to ninety-nine teachers of vocational agriculture in West Virginia, annual state report summaries for vocational agriculture, United States Census of Agriculture, 1964, and Souvenir Program West Virginia Future Farmers of America Fortieth Anniversary Convention. Of the ninety-nine questionnaires submitted, ninety-five were returned. The Chi-square test of association was used for data analysis.

Findings--The following conclusions have been drawn from this study: (1) there are thirteen factors significantly associated with the successful establishment and maintenance of young and adult agriculturist education programs in vocational agriculture while two others proved near significance; (2) state supervisory staff for vocational agriculture and local school administrators should encourage annually the continuance of young and adult agriculturist classes and encourage the beginning teacher to start teaching classes initially, in order to develop longevity in teaching such programs; (3) teacher educators serving as student advisers should encourage Agricultural Education majors to take more animal science courses, and join essential collegiate organizations; (4) local school administrators need to encourage more adult education classes in their schools, and to guide the increase in enrollment of the vocational agriculture teachers in the department; and (5) part-time farmers and part-time Class VI farms make up an important segment of a young and adult agriculturist education program clientele.

TORRENCE, DENNIS W. The Place of the Future Farmers of America Organization in the Vocational Agriculture Program as Perceived by Virginia Teachers of Vocational Agriculture and Their School Principals. 1968, Thesis, M.S., 1972, University of Maryland. Library, University of Maryland, College Park.

Purpose--To determine the place of the FFA organization in the vocational agriculture program. Results were based on responses of 149 teachers of vocational agriculture and 110 secondary school principals with vocational agriculture programs in Virginia.

Method--Data were collected by mail questionnaires which consisted of corresponding statements regarding the FFA as it is today and the FFA as it should be. Chi-square was used to measure statistical significance of differences between teacher responses and principal responses.

Findings--The major findings were: (1) the FFA is and should continue to be an integral part of the vocational agriculture program; (2) membership in the FFA is a significant factor in influencing students to enroll in the vocational agriculture program; (3) a significantly greater percent of teachers (51 percent) than principals (27 percent) believe that the name of the FFA should be changed to a more appropriate name; (4) principals are more contented with the FFA as it is today than are vocational agriculture teachers; (5) leadership training provided by FFA activities is adequate for vocational agriculture students; (6) principals need to be better informed about the FFA program; (7) a significantly greater percent of teachers (51 percent) than principals (28 percent) believe that FFA contests should be held during regular school hours; and (8) girls are not being allowed membership in nearly two-thirds of the FFA chapters.

Based on the results of the study, the following recommendations were made: (1) this study or a similar study be repeated periodically in Virginia as well as other states to determine the current trend in attitudes and opinions of teachers and principals toward the place of the FFA in vocational agriculture; (2) findings in the study be utilized in state and local public relations programs to show the place and value of the FFA in the vocational agriculture program; and (3) state and local vocational agriculture personnel make a visible effort to update the FFA program in such areas as girl membership, FFA name change, and FFA contests.

TULLOCH, RODNEY W. Factors Involved in Occupational Success of Former Vocational Agriculture Students. Thesis, Ph.D., 1972, The Pennsylvania State University. 123 p. Library, The Pennsylvania State University, University Park.

Purpose--To develop an occupation-oriented model cumulative record system for high school students and to test the component predictor variables for relation to employment criterion measures taken seven to nine years following graduation from programs in vocational agriculture.

Method--The 25 independent variables studied were information on high school productive enterprise projects, other cooperative education (supervised work experience), involvement in FFA, post-secondary education and first occupation, family characteristics, and student characteristics. The criterion variables were occupational attainment measures of socioeconomic status of, annual income from, and job satisfaction in present employment position.

Data were assembled on a sample of 254 students graduated from fifteen different high schools. Information was obtained from school records and by telephone from the student and his parents. All variables were quantitative or were assigned index or scale values. Correlation and standard regression coefficients were calculated. The .10 level of significance was used.

Findings--The hypothesis of no relationship between each of the 25 independent variables and occupational attainment as measured by socioeconomic status of present position was rejected for seven variables: agricultural production work experience, socioeconomic status of first job, income from projects, father a young farmer member, father's socioeconomic status, agricultural production work experience, and first job an agricultural occupation.

The hypothesis of no relationship between each of the 25 independent variables and occupational attainment as measured by net annual income was rejected for seven independent variables: father's income, cooperating school, first job an agricultural occupation, income from projects, high school rank, highest FFA degree, and mother's educational level.

The hypothesis of no relationship between each of the 25 independent variables and occupational attainment as measured by job satisfaction was rejected for four variables: agricultural production work experience, months of military experience, number of cooperative activities, and work experience income.

Some of the factors found to be important correlates of each of the three measures of occupational success have implications for future high school agriculture programs. Students should be encouraged to: continue and expand their work experience programs, continue their education beyond high school, earn higher FFA degrees, participate in cooperative activities, and improve their class rank. Many factors which can less readily be changed by our educational system are also correlated with occupational success and can be used as predictors.

WILLIAMS, WILLIAM. Educational Demonstration of Effects of Urea as a Feed Supplement for Slaughter Cattle. Thesis, D.Ed., 1972, The Pennsylvania State University. 66 p. Library, The Pennsylvania State University, University Park.

Purpose--To (1) help teachers of agriculture, high school students, and adult farmers realize the effectiveness of a feeding trial as a method of acquiring information about the use of specific feeds; (2) test effects of urea-containing non-protein nitrogen feed supplements on ending weight, value, and cost per pound of gain of slaughter cattle; and (3) determine differences in ending weight, adjusted by beginning weight and weight per day of age, of animals grouped by sex and sire.

Method--Fify-one Angus feeder cattle were studied in a 78-day feeding trial. The cattle were weighed and graded, divided by sex, and assigned to three treatment groups. There were three lots each containing six steers and two bulls and three lots each containing nine heifers. Each of three rations was fed to one lot of steers and one lot of heifers. The treatments were (1) a basal ration of ground ear corn, (2) the basal ration and dry urea supplement, and (3) the basal ration and liquid protein supplement containing urea. Each lot of cattle was fed, free choice, the same quality of hay. A continuous supply of water and minerals was provided in each lot. The cattle were weighed and graded at the close of the feeding trial. Multiple regression with parsimony was used to select variables for the analysis of covariance test of differences among mean ending weights and values.

At the beginning, farmers, teachers, livestock specialists, and students were invited to participate in a field day at the site of the feeding trial. Two pens of steers were numbered, and all persons in attendance were asked to rank the animals in the order in which they anticipated each would gain. Spearman rank order correlation with actual gain was calculated.

Findings--There were no significant differences in adjusted mean ending weights of 747 lb. for the basal ration of ground ear corn, 752 lb. for the basal

ration and dry urea supplement, and 758 lb. for the basal ration and urea-containing liquid protein supplement. It may be that the hay, which tested 12 percent protein, met the protein requirements of the cattle.

Analysis of the ending value of both male and female slaughter cattle fed the three types of feed revealed no significant differences. Value of each animal was determined by sex, grade, and weight. Costs per pound of gain of female and male slaughter cattle fed the three rations showed no significant differences. The added cost of the urea in either form was not large enough to cause a significant increase in cost per pound of gain. There were no differences among offspring of the three herd sires, when measured by ending weights and ending values.

There were no significant differences among the groups of persons who predicted the rank order in which animals would gain. Cattle which were heavier at the beginning of the trial gained more than those which were lighter.

An instruction guide for conducting feeding trials was written. It shows how to plan and carry out an educational demonstration. The guide lists the critical measurements which were necessary to conduct a successful feeding trial.

WILSON, JAMES E. Measurable Objectives for Vocational Agriculture in West Virginia. Thesis, M.S., 1972, West Virginia University. 76 p. Library, West Virginia University, Morgantown.

Purpose--To determine if the objectives submitted by the vocational agriculture teachers of West Virginia for the 1969-70 school year were stated in measurable terms and to construct measurable objectives in the areas of instruction where required.

Method--Data for the study were obtained from the respective county plans as submitted to the Bureau of Vocational, Technical, and Adult Education, State Department of Education. A total of 932 objectives were obtained and analyzed.

Findings--Ninety percent of the objectives were stated as general objectives for the total vocational agriculture program or were stated as general objectives for the vocational agriculture teacher.

The objectives obtained were divided into thirteen areas of instruction for vocational agriculture and revised in measurable terms.

The writer concluded that teachers of vocational agriculture need instruction in the writing of measurable objectives.

# STUDIES IN PROGRESS

## 1972-1973

ADAMS, WILLIE G. Influence of Career Education on Motivation and Aspiration of Middle School Age Disadvantaged Youth. Thesis, D.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

BAIL, JOE P. and HAROLD R. CUSHMAN. The Development of Procedural Models for Organizing and Conducting Occupational Adult Education. Staff Study, Agricultural and Occupational Education Division, Cornell University, Ithaca, New York.

BARR, ROBERT S. Use of the Income Approach by Soil Capabilities to Determine the Market Value of Agricultural Land for Tax Purposes. Thesis, D.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

BERKEY, ARTHUR L. Development of a Validated Instrument to Measure Image in Agribusiness. Staff Study, Agricultural and Occupational Education Division, Cornell University, Ithaca, New York.

BERKEY, ARTHUR L. The relevance of Secondary Occupational Education in Agriculture to Occupational Status and Image. Staff Study, Agricultural and Occupational Education Division, Cornell University, Ithaca, New York.

CURTIS, JAMES R. Evaluation of Behavioral Objectives in Teaching Quality Milk Production to Educationally Disadvantaged High School Students. Thesis, M.S., Department of Agricultural Education, The Pennsylvania State University, University Park.

CURTIS, S. M., R. F. STINSON and W. WILLIAMS. Instruction in Agricultural Occupations for Educationally Disadvantaged Students. Staff Study, Agr. Exp. Sta. Project 2020, Department of Agricultural Education, The Pennsylvania State University, University Park.

CUSHMAN, HAROLD R.and FREDERICK K. T. TOM. A Diagnostic Observation and Reporting System for Stucent Description of College Teaching. Staff Study, Agricultural and Occupational Education Division, Cornell University, Ithaca, New York.

ELY, RON H. The Development of a Model for Determining Professional In-service Needs of Secondary Occupational Teachers. Thesis, Ph.D., Agricultural and Occupational Education Division, Cornell University, Ithaca, New York.

FYOCK, JONATHAN J. Drug Abuse Services in the Owego-Appalachian Area: Concerns and Expectations. Essay, M.Ed., Agricultural and Occupational Education Division, Cornell University, Ithaca, New York.

HARSHMAN, WILLIAM C. Adult Farmer Education in McGuffey School District. Master's Thesis, West Virginia University, Morgantown.

KELLY, WILLIAM H. Personal Exchange between Business, Industry, and Education. Department of Vocational, Technical, and Extension Education, University of Vermont, Burlington.

MC MILLIAN, RICHARD C. The Manpower Needs of Calhoun and Gilmer Counties During the Next Five Years. Master's Thesis, West Virginia University, Morgantown.

METZGAR, GEORGE F. Competencies and Skills Needed for Entry Into the Meat Processing Occupation. Master's Thesis, West Virginia University, Morgantown.

MINCEMOYER, DONALD L. The Effectiveness of Using a Student Workbook to Teach the Safe Operation of Electrically-Powered Agriculture Shop Tools and Equipment. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

NICHOL, JAMES W. Development of a Program of Instruction in Natural Resources and an Outdoor Education Laboratory at Christiana (Del.) High School. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

PERDUE, ROGER D. Pre-Service Training Needs of Teachers of Vocational Agriculture for Teaching Disadvantaged Students. Master's Thesis, West Virginia University, Morgantown.

SAVILLE, JOHN K. The Problems Encountered When Incorporating Vocational Agriculture Into Area Vocational Schools. Master's Thesis, West Virginia University, Morgantown.

SCHWARTZ, JOHN H. Cooperative Education for the Cooperative Extension Service Youth Program in Chester County. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

SHAVER, ROGER. The Role of Vocational Education in Career Education. Master's Thesis, West Virginia University, Morgantown.

STEVENS, G. Z., N. K. HOOVER, S. M. CURTIS and H. F. DORAN. Evaluation of Career Education in Agricultural Supplies, Production, and Products. Staff Study, Agr. Exp. Sta. Project 2022, Department of Agricultural Education, The Pennsylvania State University, University Park.

WILLIAMS, W., F. ANTHONY and W. E. SHIPLEY. Teaching Materials and Equipment for Instruction in Agricultural Power and Machinery. Staff Study, Agr. Exp. Sta. Project 2021, Department of Agricultural Education, The Pennsylvania State University, University Park.